FIG.1

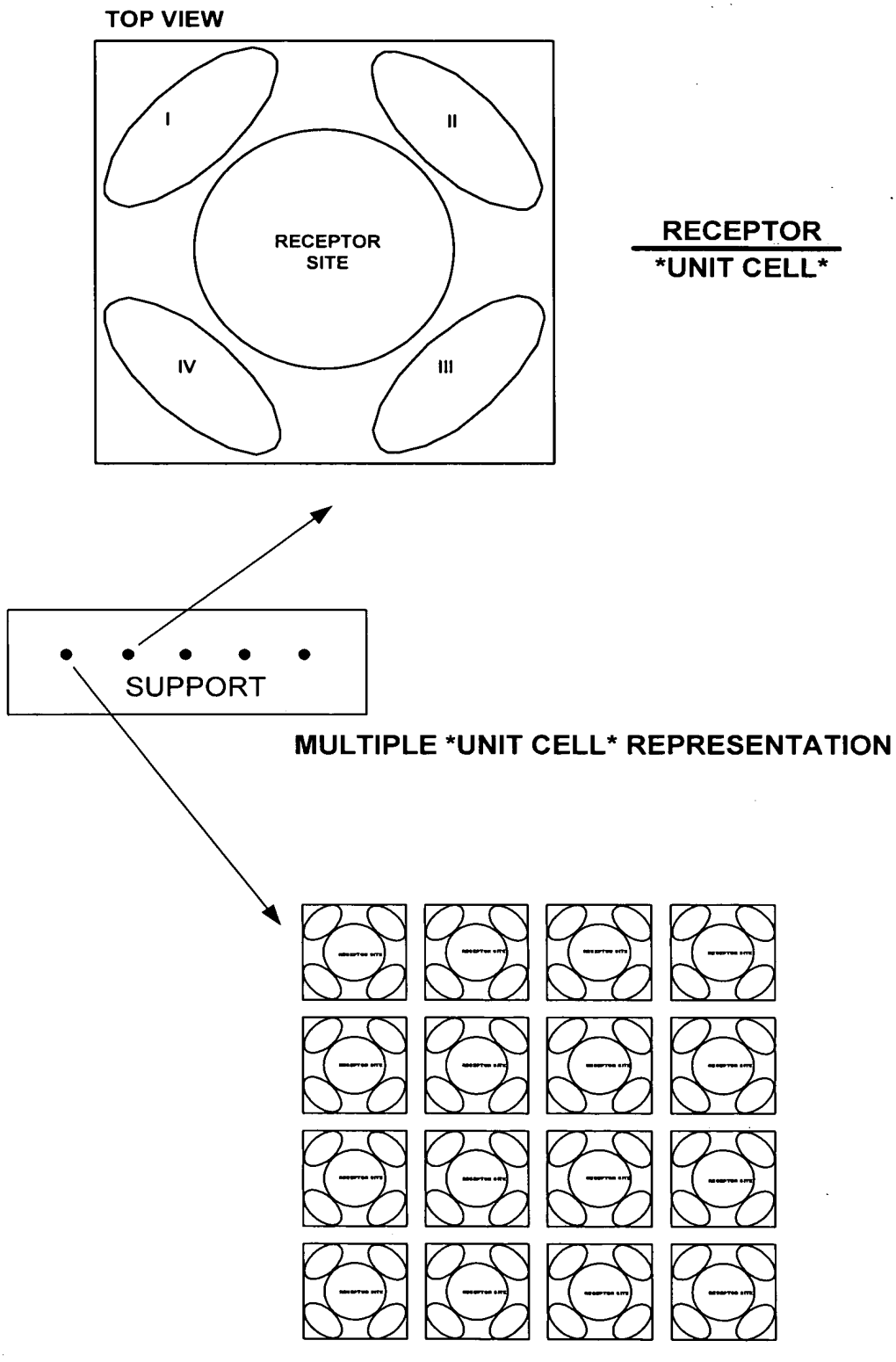

TOP VIEW
I
II
RECEPTOR SITE
IV
III
RECEPTOR
UNIT CELL
SUPPORT
MULTIPLE *UNIT CELL* REPRESENTATION

FIG.2

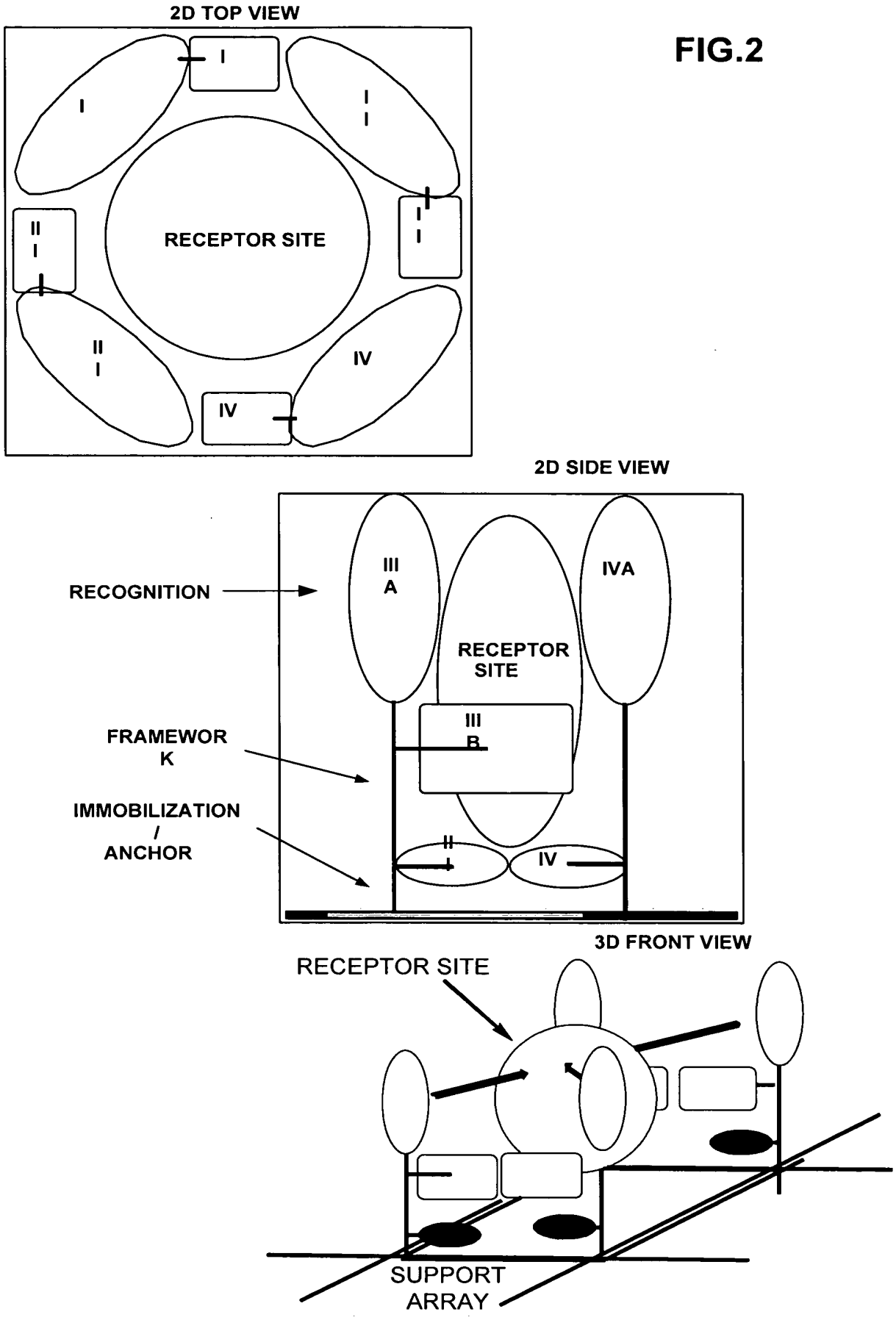
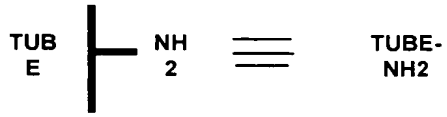
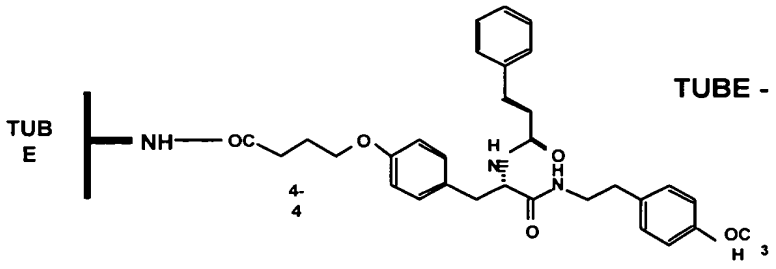
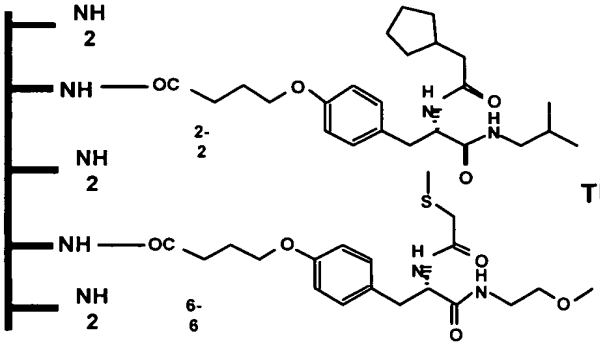

2D TOP VIEW
I
I
I
I
II
I
RECEPTOR SITE
II
I
IV
IV
2D SIDE VIEW
RECOGNITION
III
A
IVA
RECEPTOR
SITE
FRAMEWOR
K
III
B
IMMOBILIZATION
/
ANCHOR
II
IV
3D FRONT VIEW
RECEPTOR SITE
SUPPORT
ARRAY

FIG.3A





TUBE - TyrA4B4



TUBE - TyrA2B2 plus TyrA6B6

FIG.3B

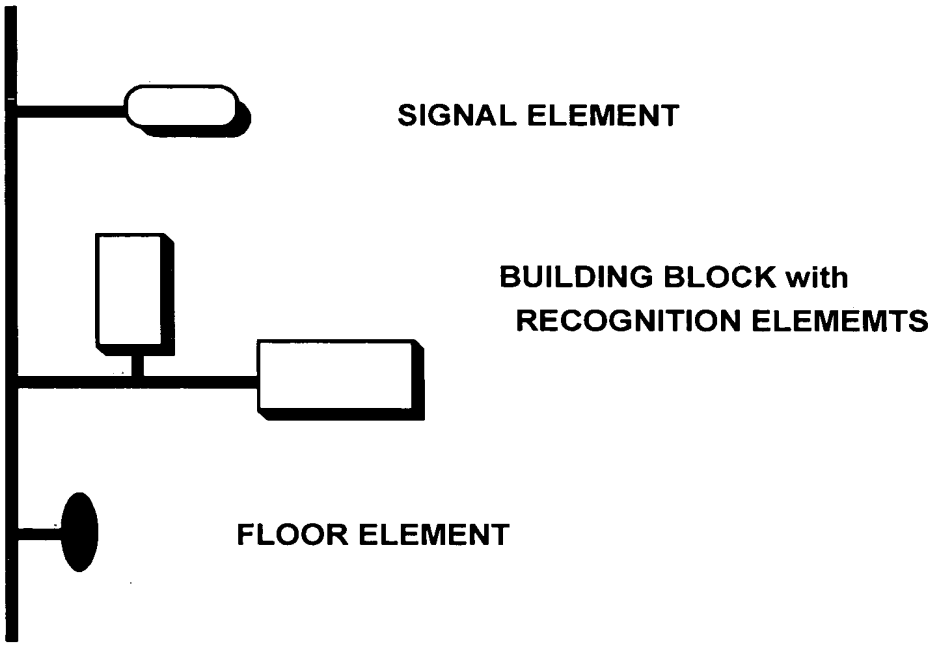

SIGNAL ELEMENT
BUILDING BLOCK with
RECOGNITION ELEMEMTS
FLOOR ELEMENT

FIG.4

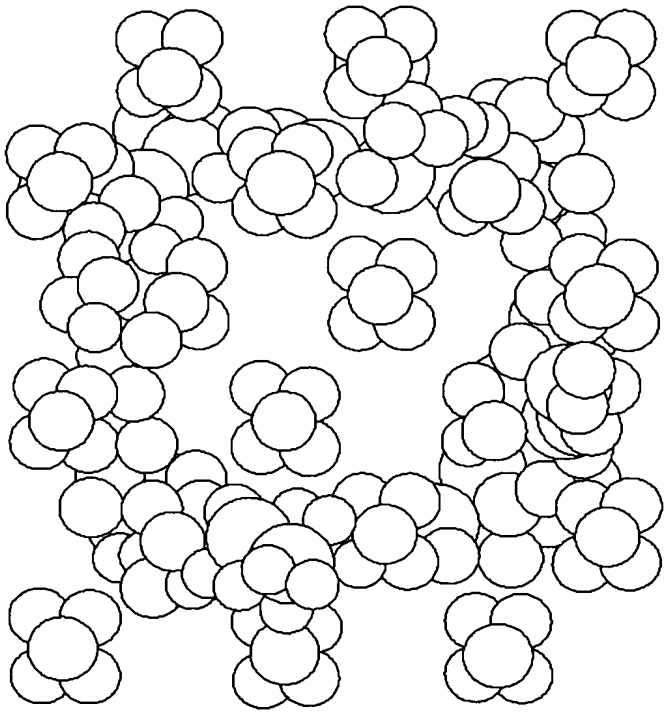


FIG.5

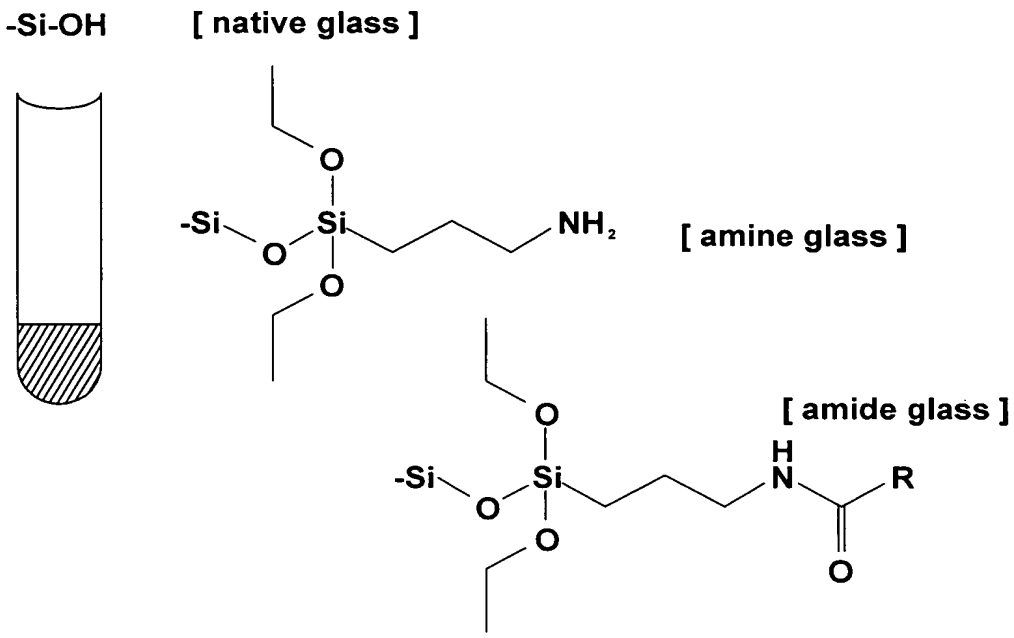

-Si-OH
[native glass]
-Si
O
Si
O
O
NH2
[amine glass]
[amide glass]
-Si
O
Si
O
O
H
N
R
O

FIG.6

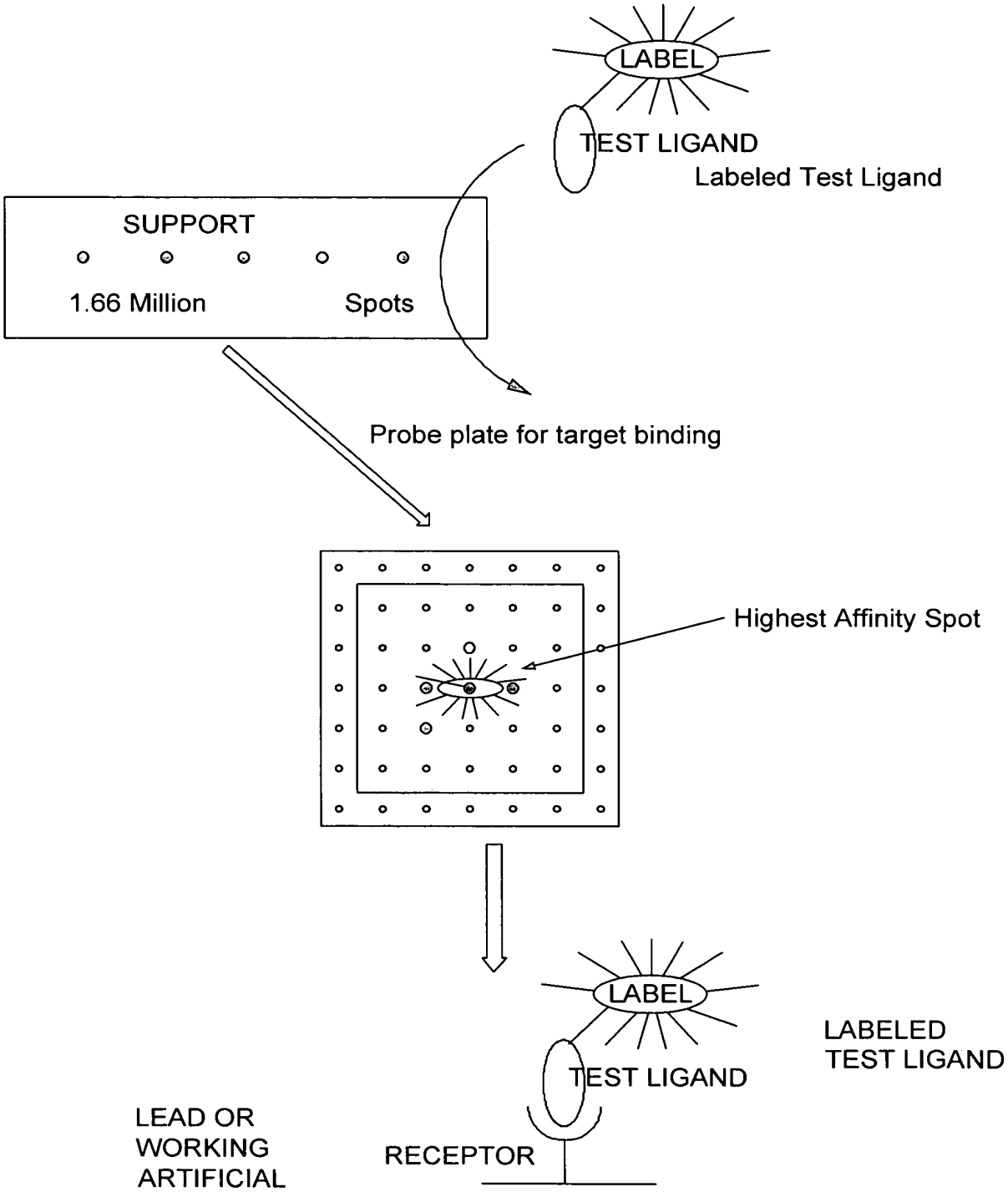

LABEL
TEST LIGAND
Labeled Test Ligand
SUPPORT
1.66 Million
Spots
Probe plate for target binding
Highest Affinity Spot
LABEL
TEST LIGAND
LABELED
TEST LIGAND
LEAD OR
WORKING
ARTIFICIAL
RECEPTOR

FIG.7

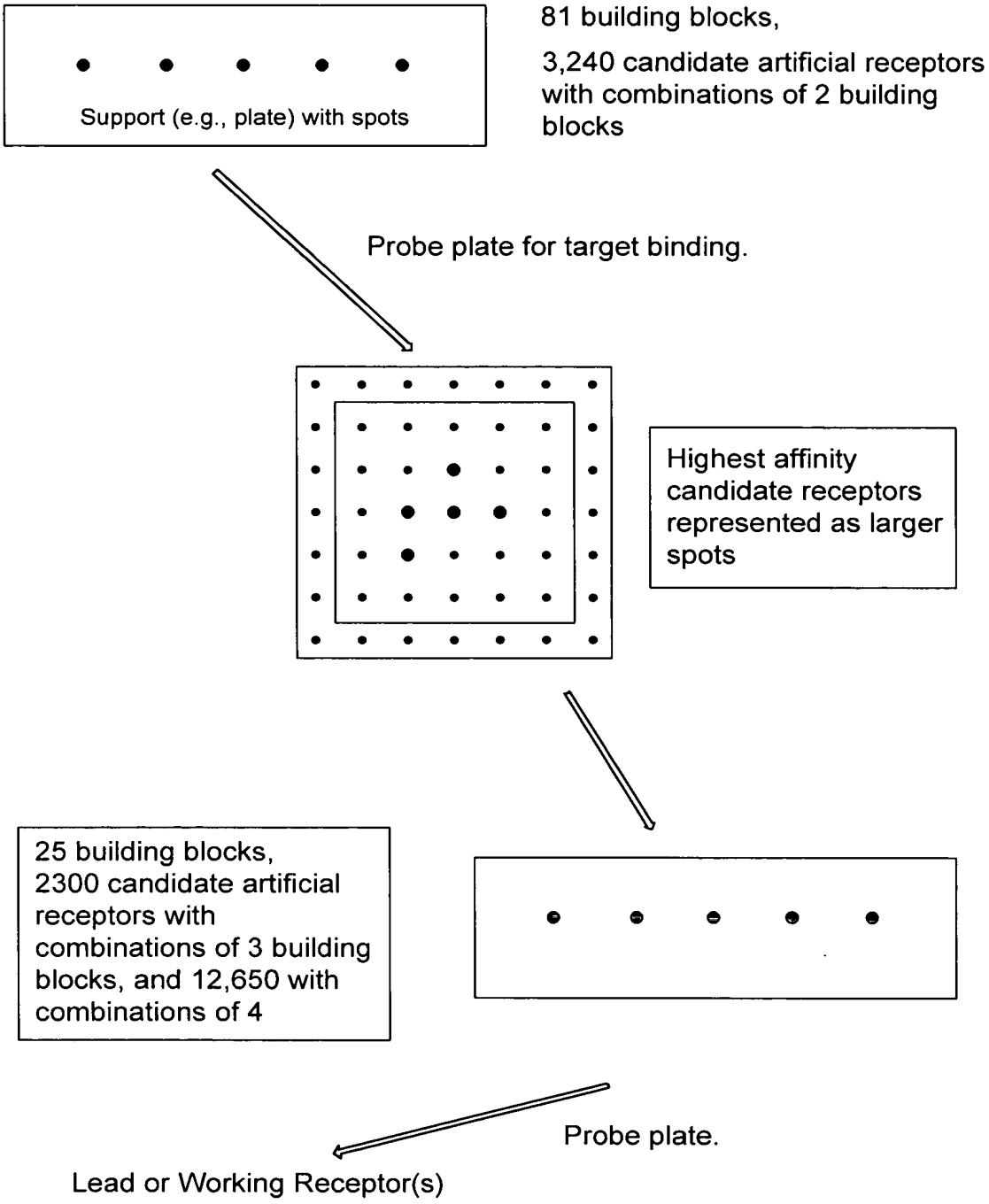
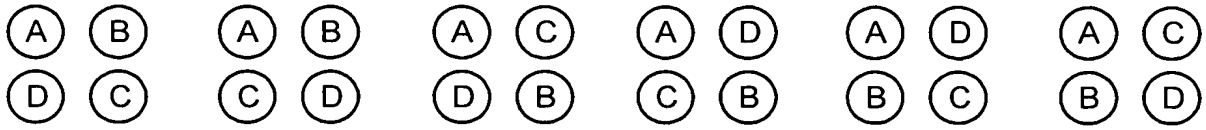
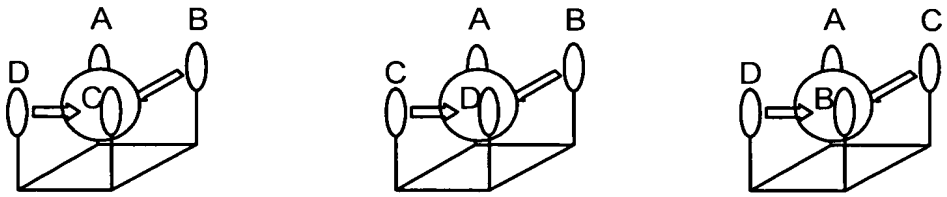

Support (e.g., plate) with spots
81 building blocks,
3,240 candidate artificial receptors with combinations of 2 building blocks
Probe plate for target binding.
Highest affinity candidate receptors represented as larger spots
25 building blocks, 2300 candidate artificial receptors with combinations of 3 building blocks, and 12,650 with combinations of 4
Probe plate.
Lead or Working Receptor(s)

FIG.8

6 POSITIONAL ISOMERS OF 4 BUILDING BLOCKS AT VERTICES OF A QUADRILATERAL



POSITIONAL ISOMERS ON A SCAFFOLD



ISOMER "1" ISOMER "2" ISOMER "3"

FIG.9

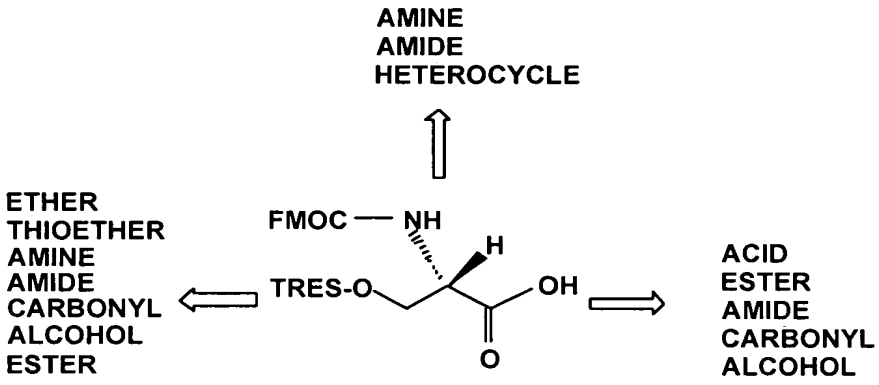

AMINE
AMIDE
HETEROCYCLE
ETHER
THIOETHER
AMINE
AMIDE
CARBONYL
ALCOHOL
ESTER
FMOC — NH
H
TRES-O
OH
O
ACID
ESTER
AMIDE
CARBONYL
ALCOHOL

FIG.10

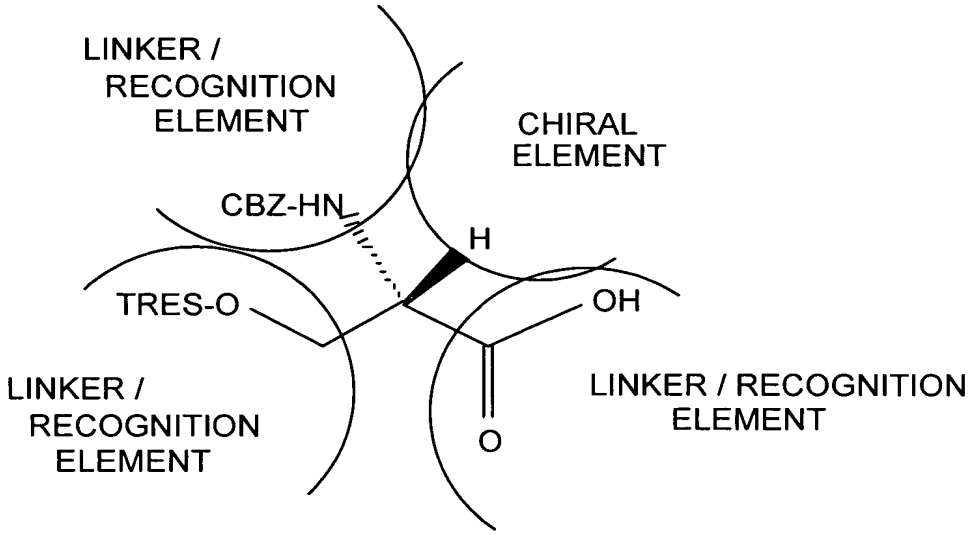
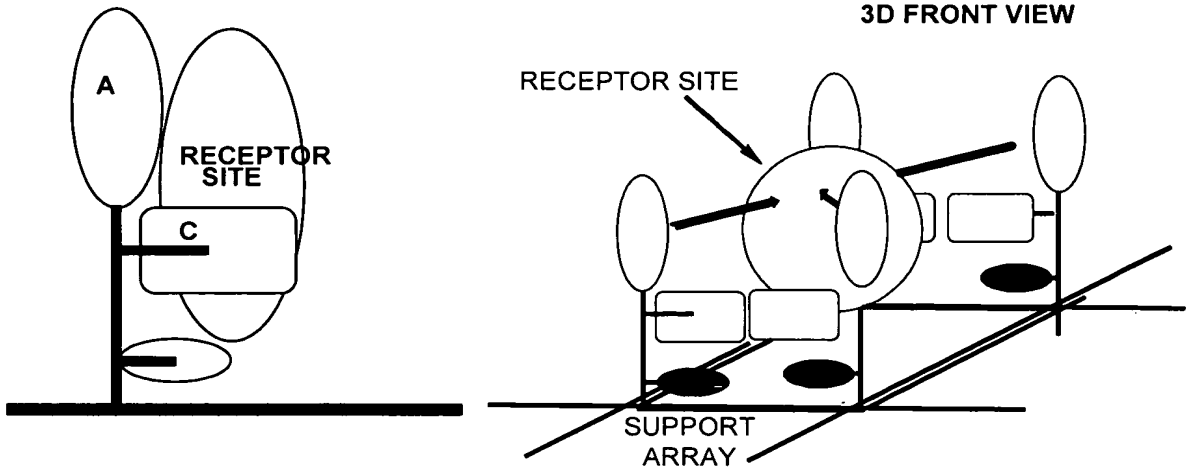
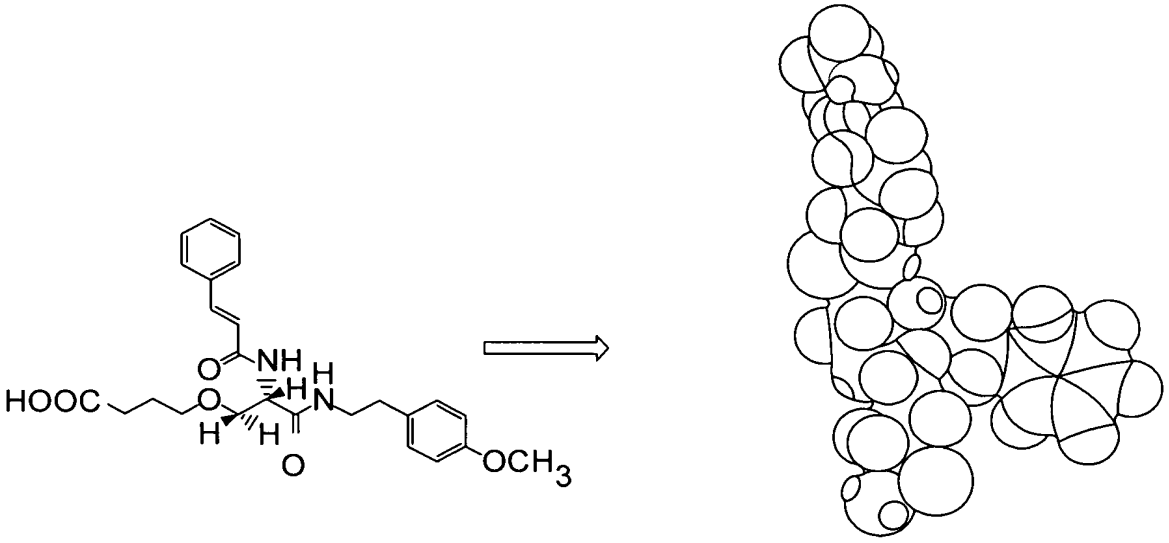

LINKER / RECOGNITION ELEMENT
CHIRAL ELEMENT
CBZ-HN
H
TRES-O
OH
LINKER / RECOGNITION ELEMENT
LINKER / RECOGNITION ELEMENT
O

FIG.11


A
RECEPTOR SITE
C
3D FRONT VIEW
RECEPTOR SITE
SUPPORT ARRAY


HOOC
NH
H
H
N
O
O
H
H
O
OCH3

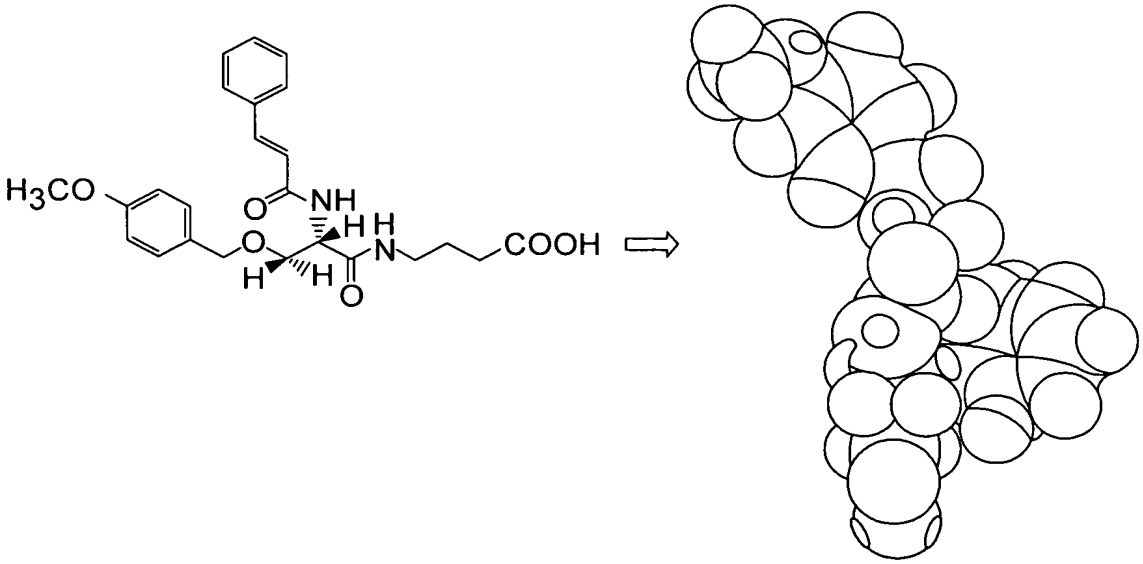
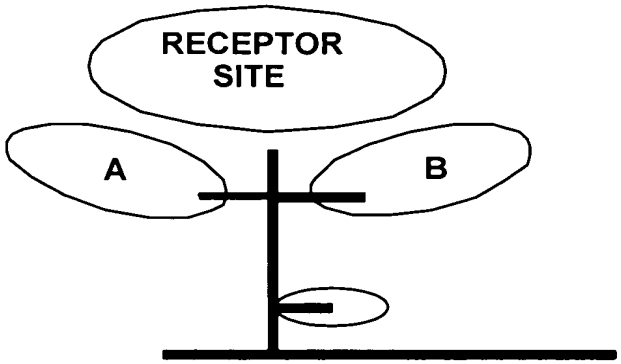
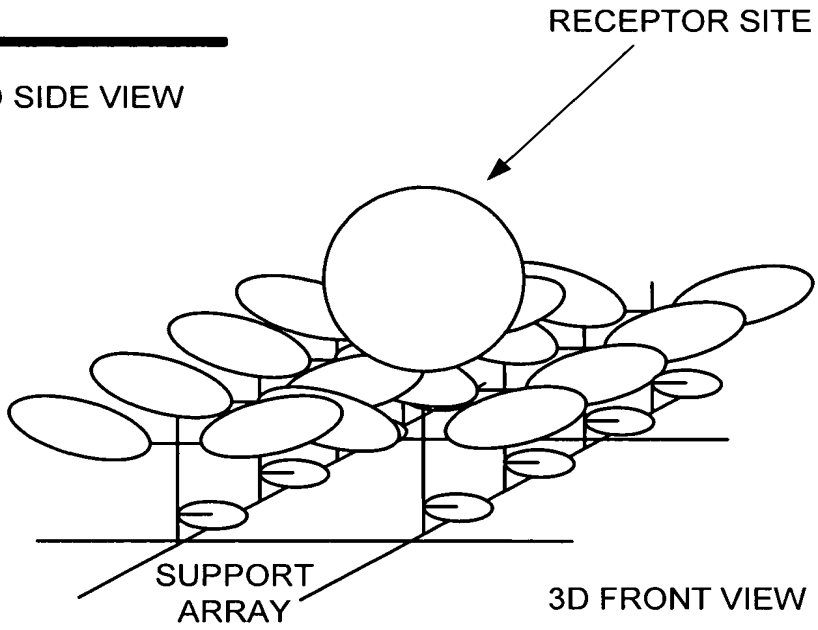

H3CO
O
NH
H
H
N
O
H
H
O
COOH

FIG.12



PARTIAL 2D SIDE VIEW



3D FRONT VIEW

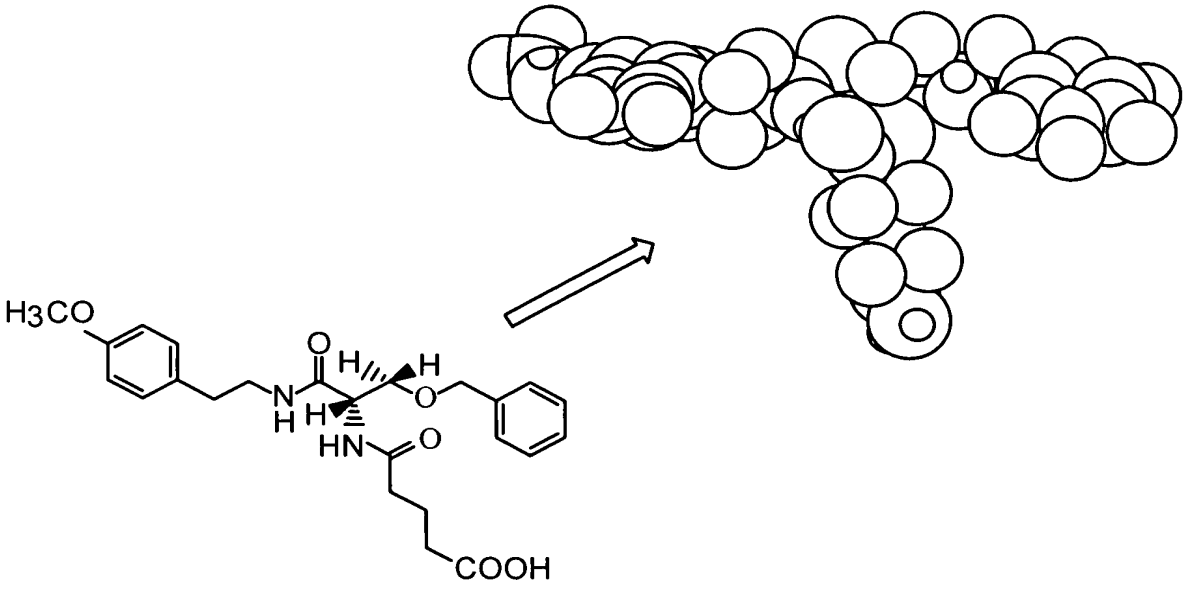
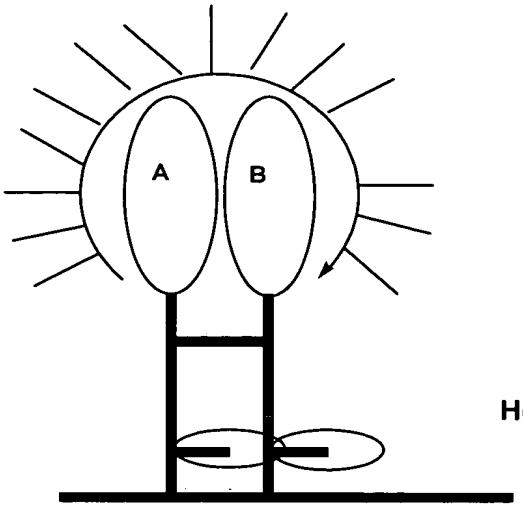
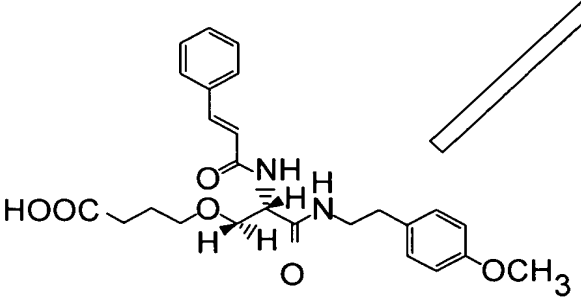


FIG.13



Heterogeneous A/B Illustrated

Heterogeneous A/A Illustrated



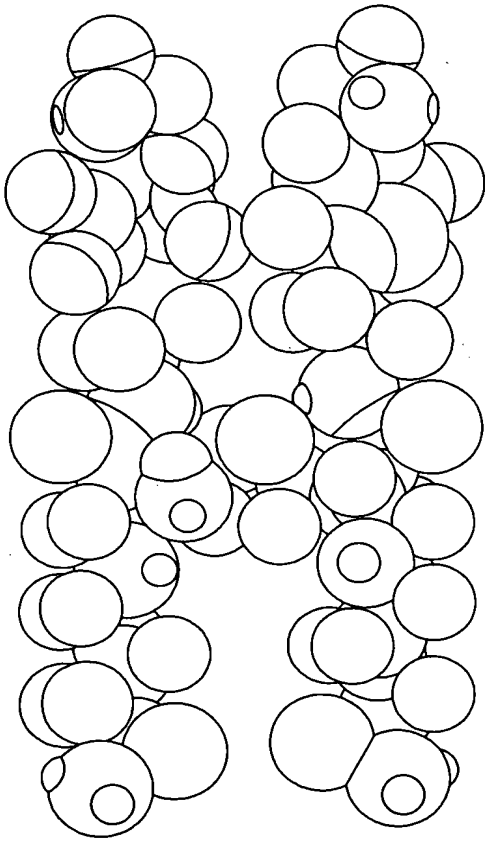


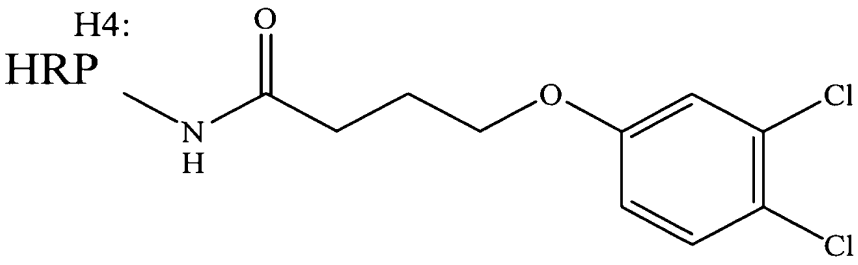
FIG.14

Formula H1: HRP-(NH2)2

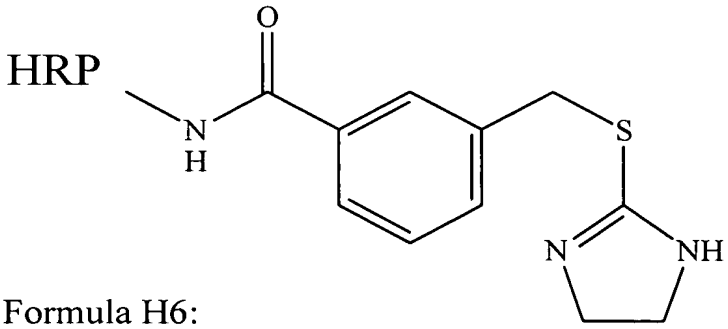
Formula H2: HRP-(NH2)20

Formula H3: HRP-(NHCOCH3)20

Formula H4:



Formula H5:



Formula H6:

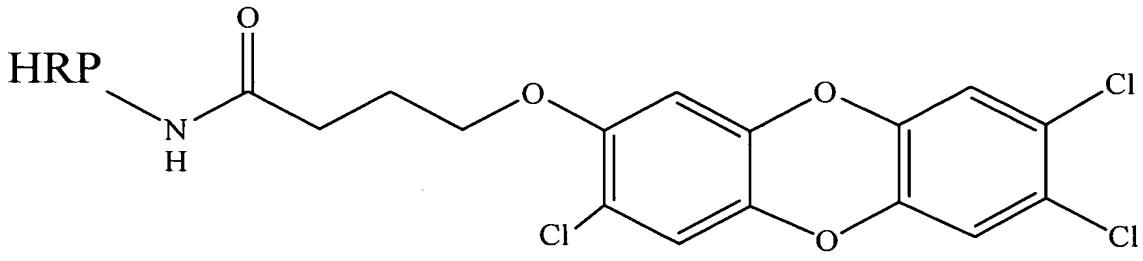


FIG.15A

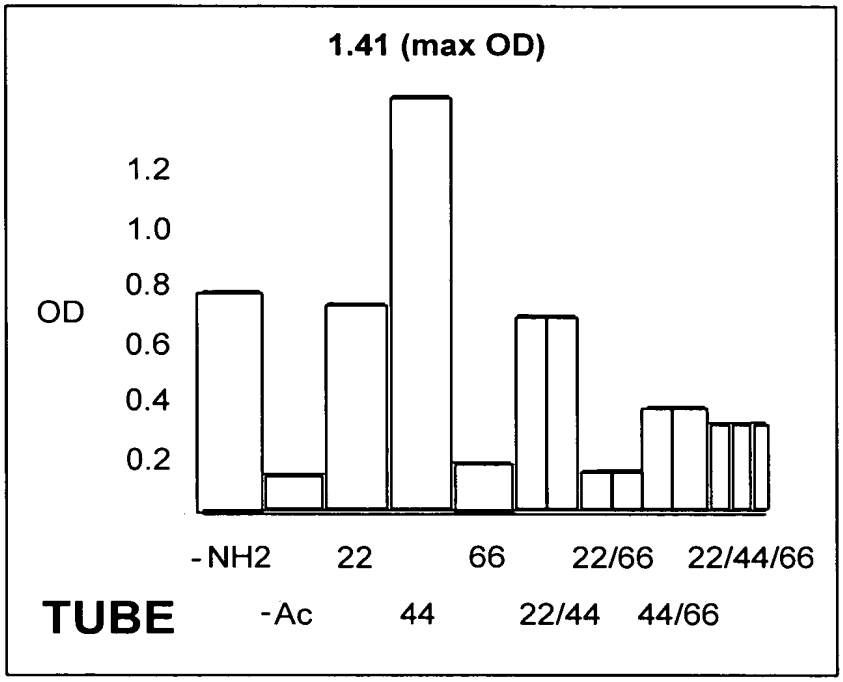
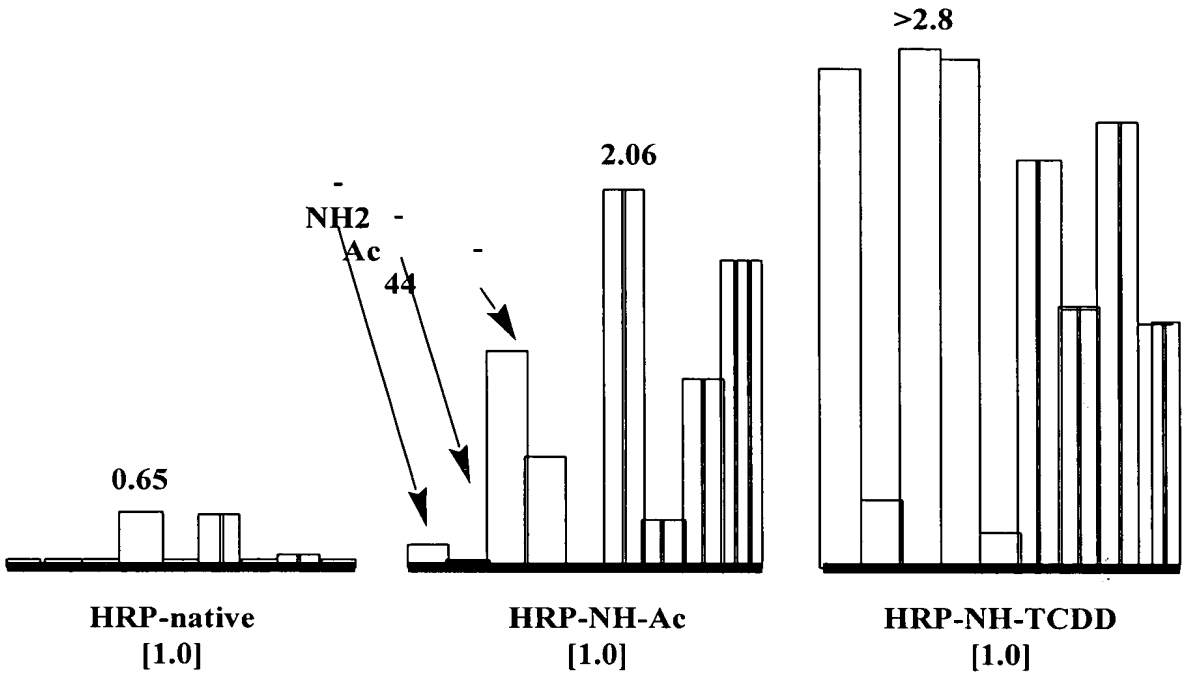

1.41 (max OD)
1.2
1.0
0.8
OD
0.6
0.4
0.2
-NH2
22
66
22/66
22/44/66
TUBE
-Ac
44
22/44
44/66

FIG.15B



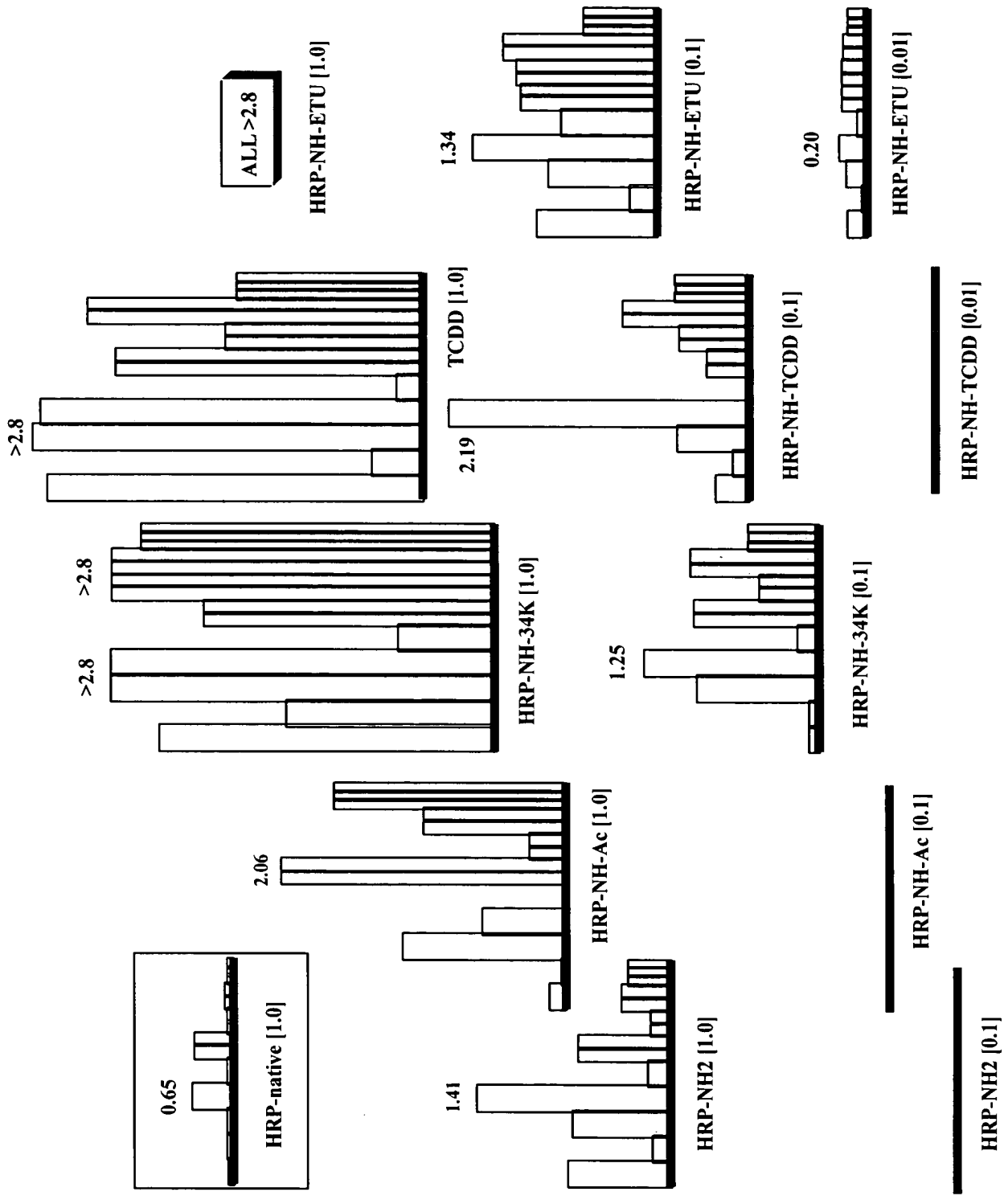

ALL>2.8
HRP-NH-ETU [1.0]
1.34
HRP-NH-ETU [0.1]
0.20
HRP-NH-ETU [0.01]
>2.8
TCDD [1.0]
2.19
HRP-NH-TCDD [0.1]
HRP-NH-TCDD [0.01]
>2.8
>2.8
HRP-NH-34K [1.0]
1.25
HRP-NH-34K [0.1]
2.06
HRP-NH-Ac [1.0]
HRP-NH-Ac [0.1]
0.65
HRP-native [1.0]
1.41
HRP-NH2 [1.0]
HRP-NH2 [0.1]

FIG.17

FIG.16

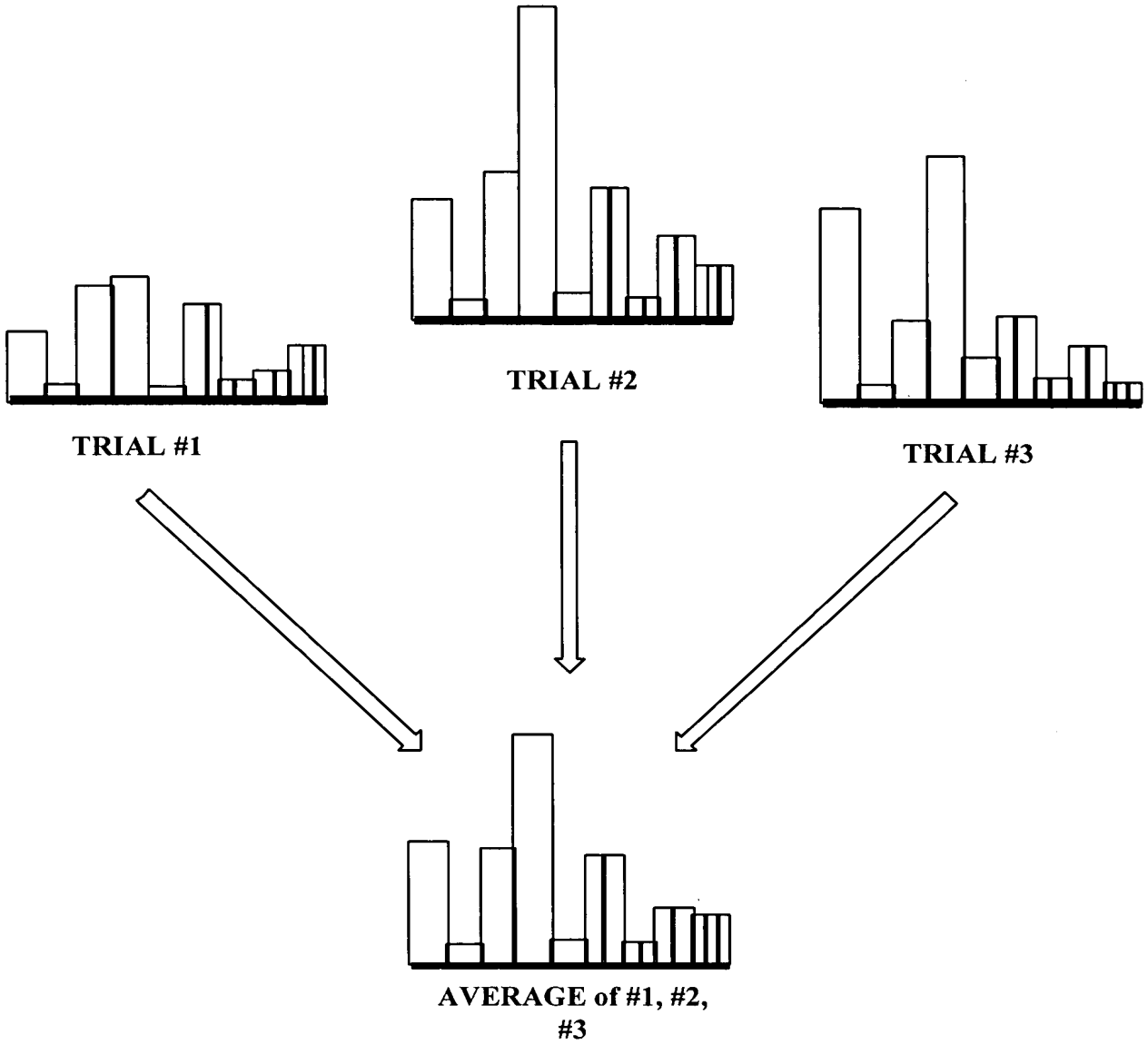


FIG.18

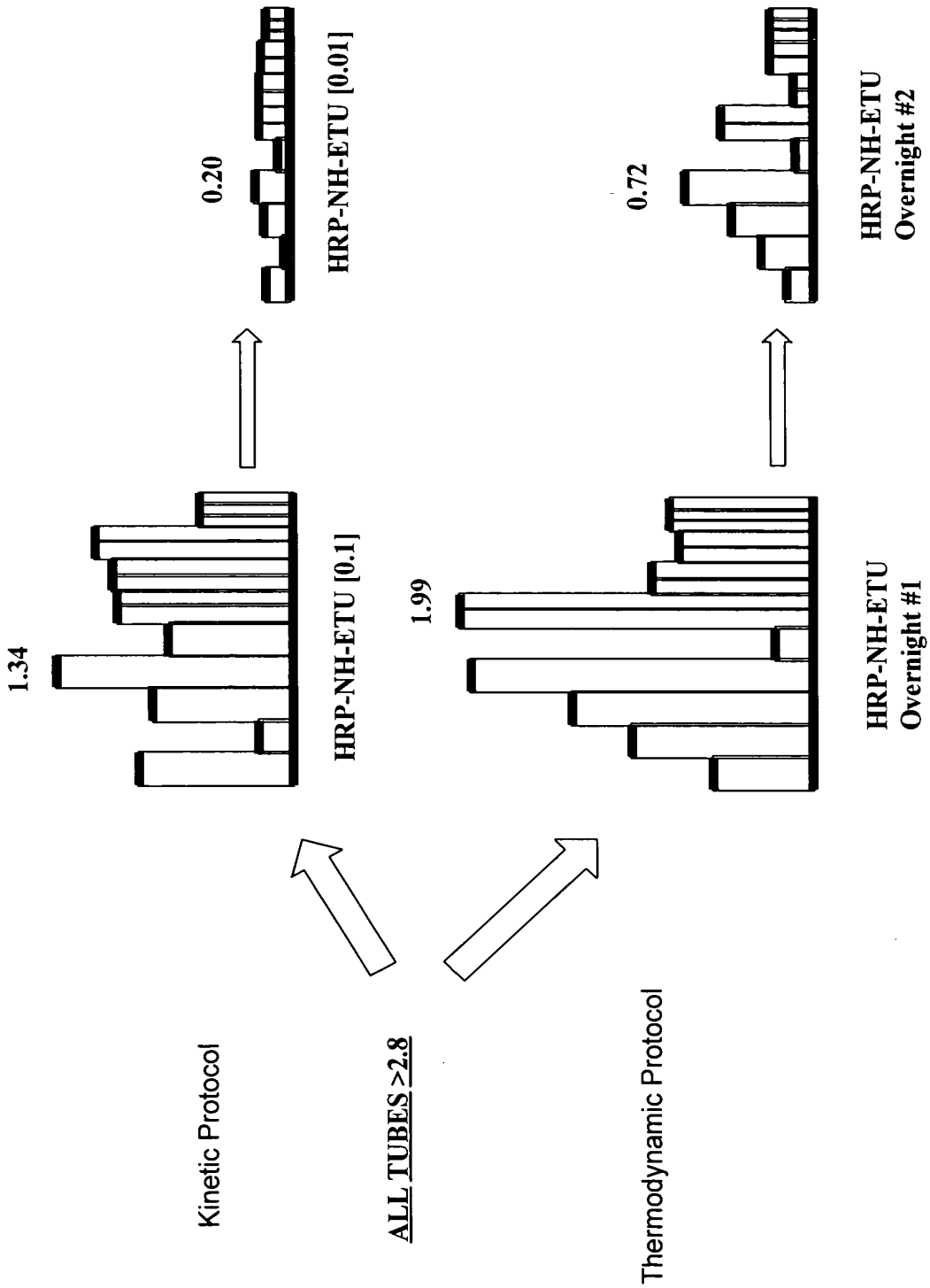

Kinetic Protocol
ALL TUBES >2.8
Thermodynamic Protocol
1.34
HRP-NH-ETU [0.1]
0.20
HRP-NH-ETU [0.01]
1.99
HRP-NH-ETU Overnight #1
0.72
HRP-NH-ETU Overnight #2

FIG.19

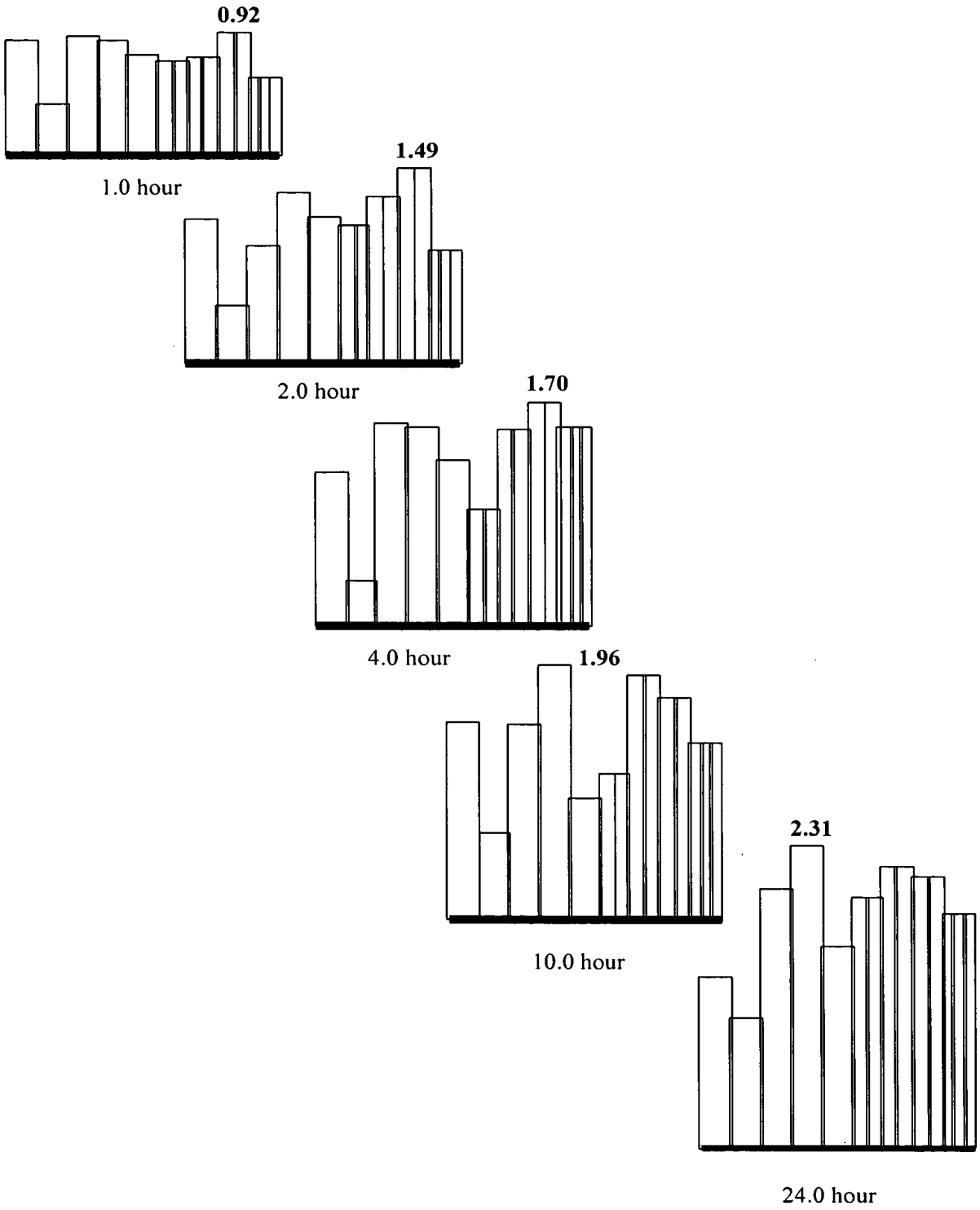


FIG.20

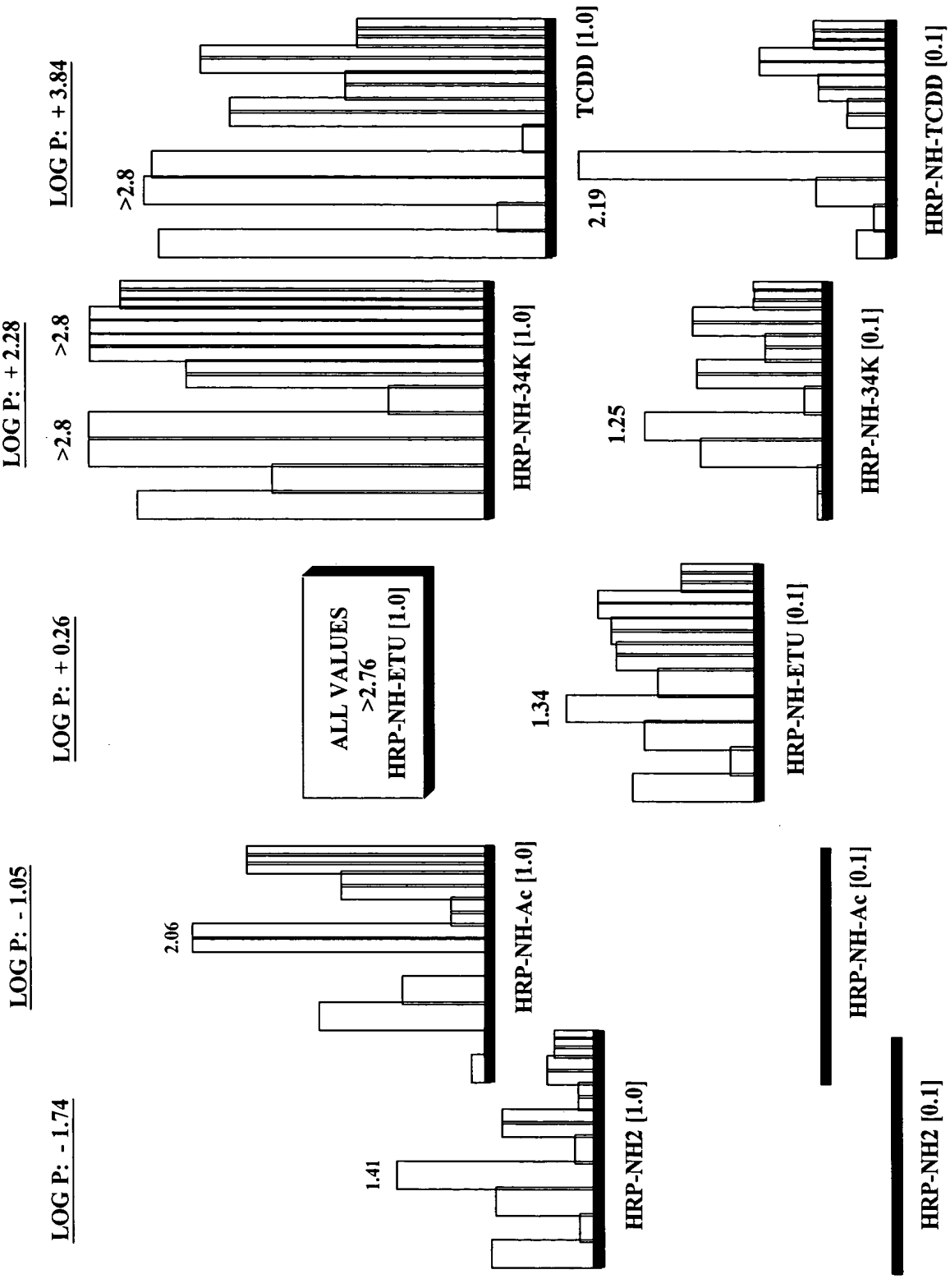
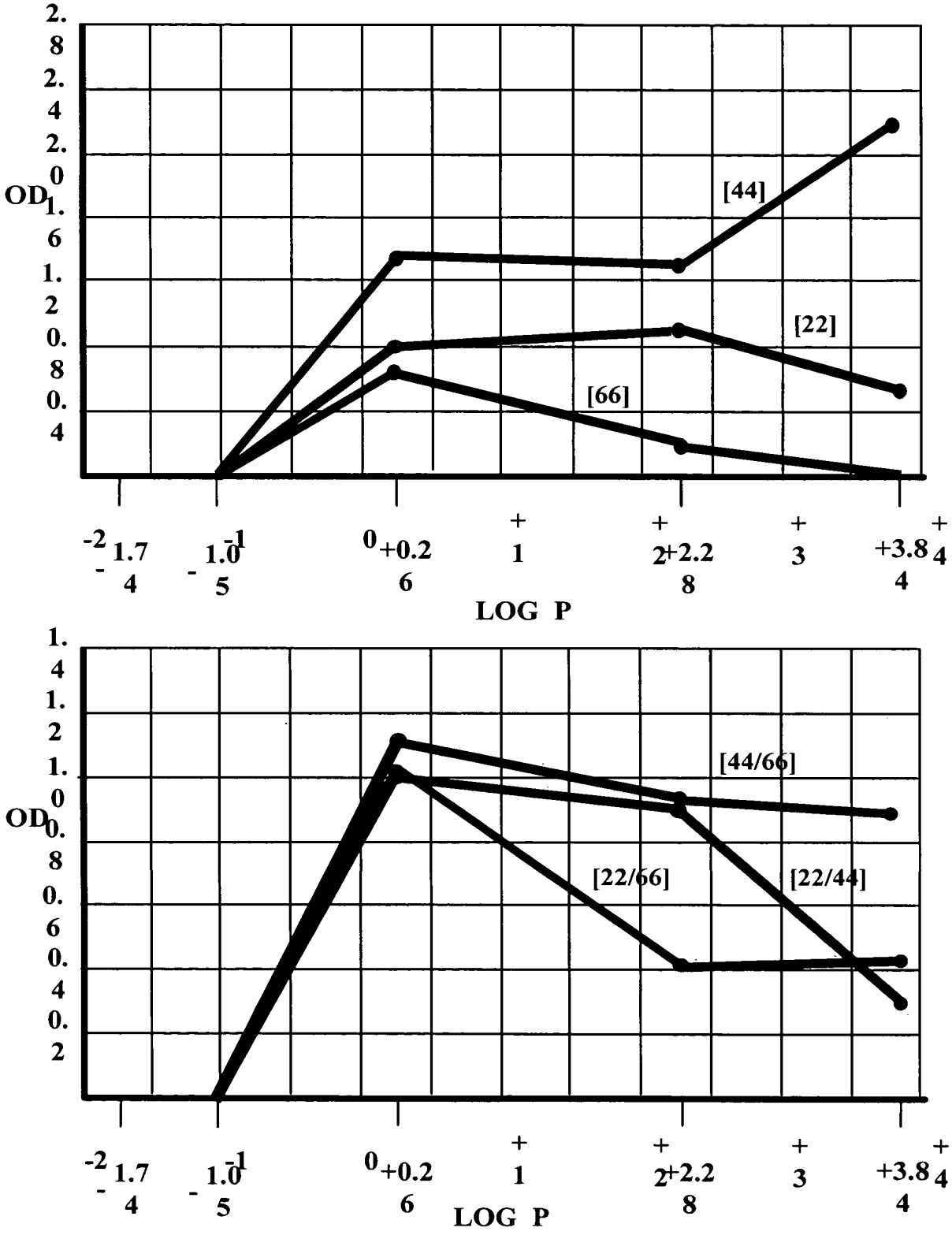

LOG P: - 1.74
LOG P: - 1.05
LOG P: + 0.26
LOG P: + 2.28
LOG P: + 3.84
1.41
2.06
1.34
>2.8
>2.8
>2.8
2.19
1.25
ALL VALUES
>2.76
HRP-NH-ETU [1.0]
HRP-NH2 [1.0]
HRP-NH-Ac [1.0]
HRP-NH-ETU [0.1]
HRP-NH-34K [1.0]
TCDD [1.0]
HRP-NH2 [0.1]
HRP-NH-Ac [0.1]
HRP-NH-34K [0.1]
HRP-NH-TCDD [0.1]

FIG.21


OD
2.8
2.4
2.0
1.6
1.2
0.8
0.4
[44]
[22]
[66]
-2
-1.74
-1
-1.05
0
+0.26
+1
+2
+2.28
+3
+3.84
+4
LOG P
OD
1.4
1.2
1.0
0.8
0.6
0.4
0.2
[44/66]
[22/66]
[22/44]
-2
-1.74
-1
-1.05
0
+0.26
+1
+2
+2.28
+3
+3.84
+4
LOG P

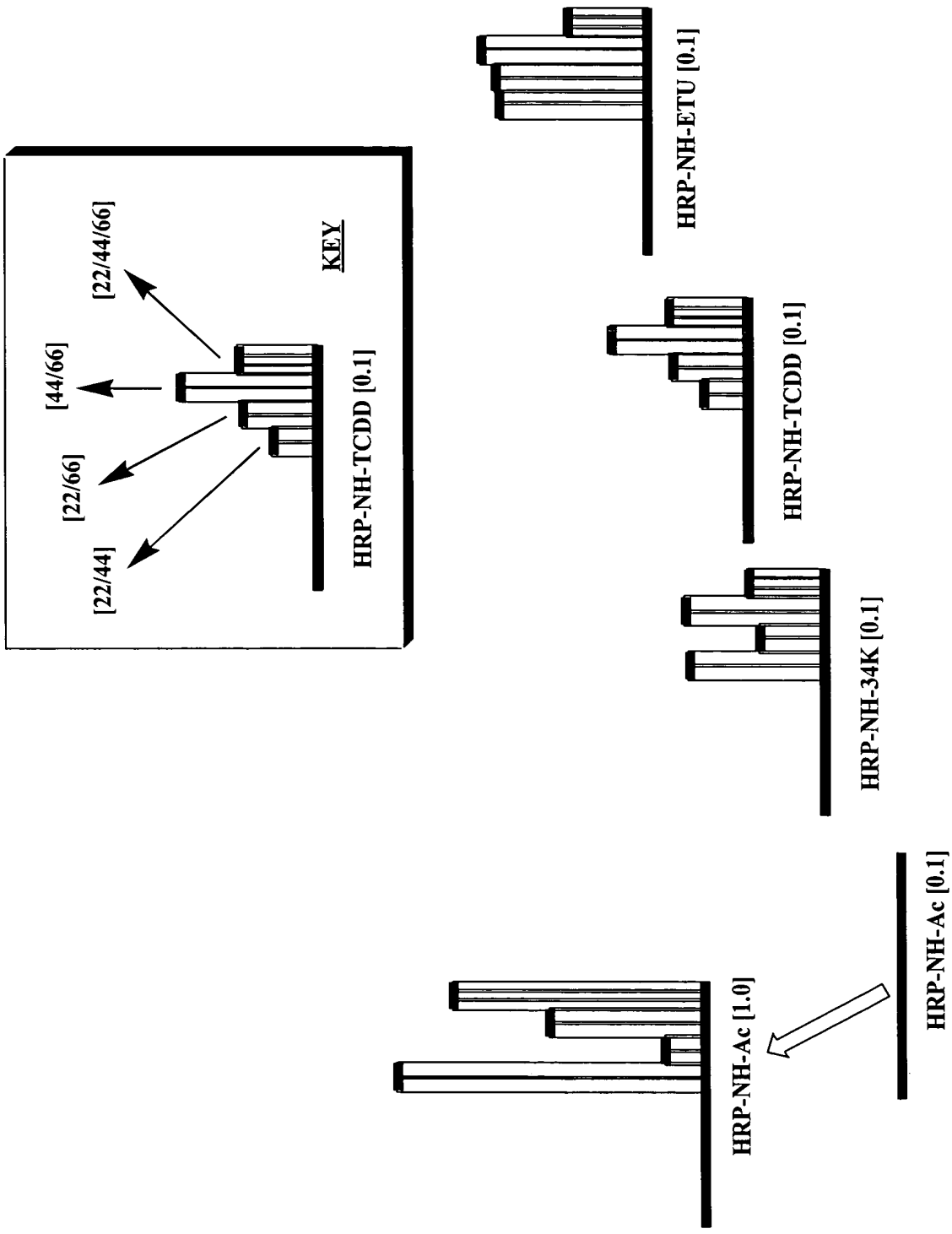

KEY
HRP-NH-TCDD [0.1]
[22/44/66]
[44/66]
[22/66]
[22/44]
HRP-NH-ETU [0.1]
HRP-NH-TCDD [0.1]
HRP-NH-34K [0.1]
HRP-NH-Ac [0.1]
HRP-NH-Ac [1.0]

FIG.22

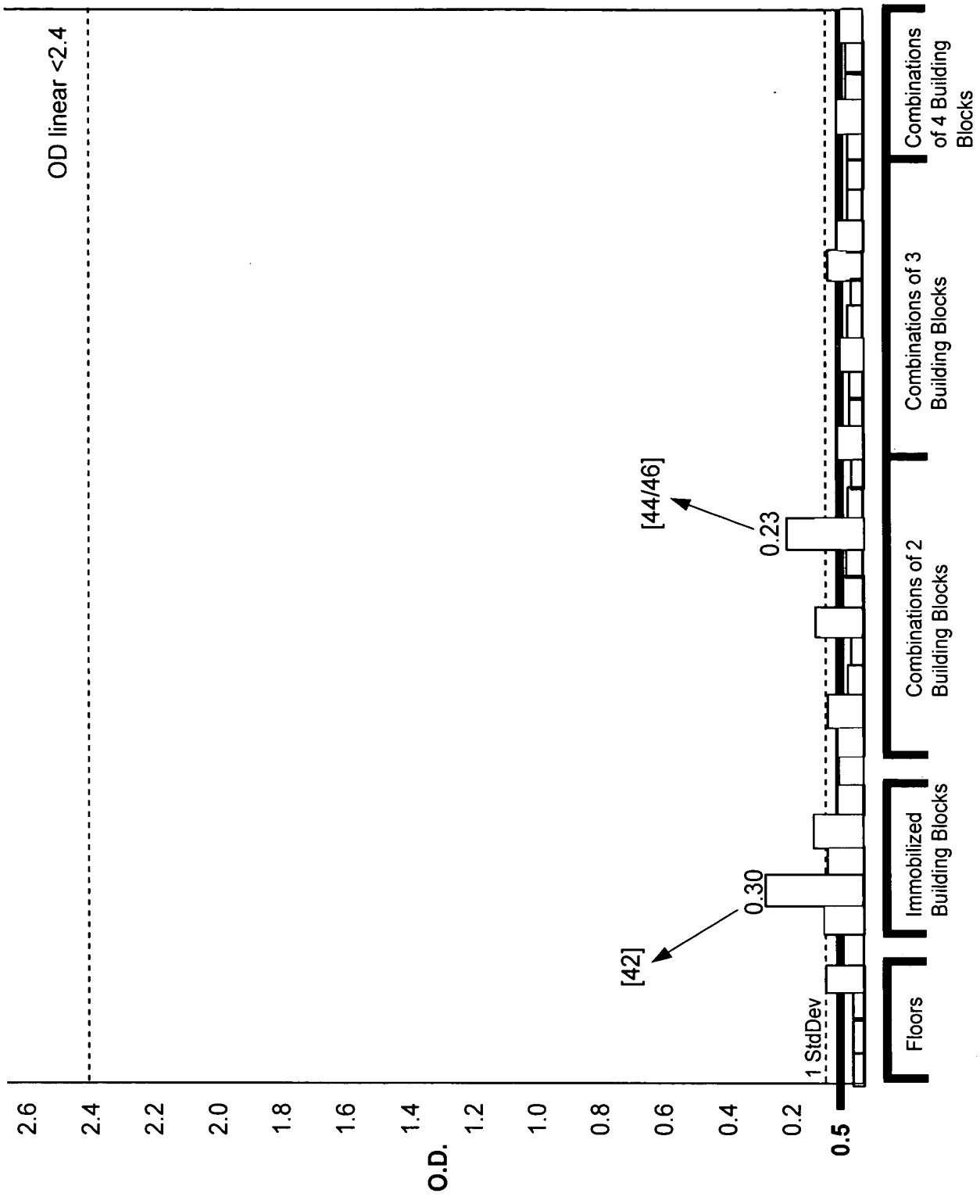

OD linear <2.4
2.6
2.4
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.5
O.D.
1 StdDev
[42]
0.30
[44/46]
0.23
Floors
Immobilized Building Blocks
Combinations of 2 Building Blocks
Combinations of 3 Building Blocks
Combinations of 4 Building Blocks

FIG.23

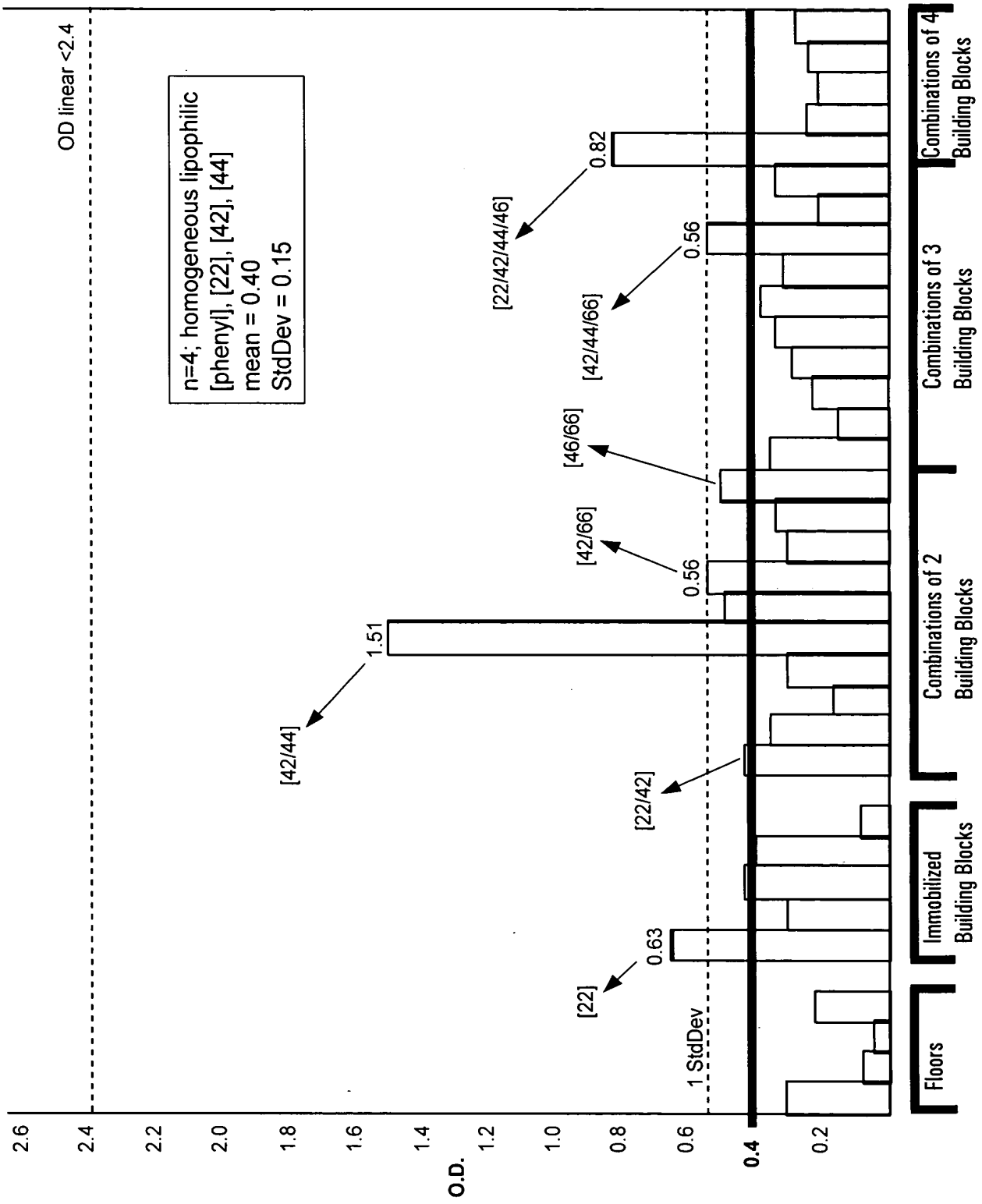

OD linear <2.4
n=4; homogeneous lipophilic
[phenyl], [22], [42], [44]
mean = 0.40
StdDev = 0.15
[22/42/44/46]
0.82
[42/44/66]
0.56
[46/66]
[42/66]
0.56
[42/44]
1.51
[22/42]
[22]
0.63
1 StdDev
O.D.
2.6
2.4
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
Floors
Immobilized Building Blocks
Combinations of 2 Building Blocks
Combinations of 3 Building Blocks
Combinations of 4 Building Blocks

FIG.24